

# PIVOTAL COUNTER ASSEMBLY FOR A SHOE

## BACKGROUND OF THE INVENTION

### 1. Field of the Invention

The present invention relates to a counter assembly, and more particularly to a pivotal counter assembly for a shoe.

### 2. Description of Related Art

A shoe has a counter portion to enclose the heel of a user who wears the shoe. In general, the counter portion is integrally formed on an upper of the shoe to make a continuous upper, which substantially includes a toe cup, a vamp and a counter portion. However, to put on or take off the shoe having a continuous upper with an integral counter portion is inconvenient. Therefore, a pivotal counter assembly is provided to enable the counter portion to be pivotally rotated, and the user can put on or take off the shoe conveniently.

A conventional pivotal counter assembly in accordance with the prior art substantially comprises a base, a counter plate and a positioning device. The base is embedded in a hole defined in the sole of the shoe. The counter plate is curved and is pivotally mounted on the base to serve as a counter portion of the upper of the shoe. The positioning device is mounted between the base and the counter plate to hold the counter plate in position. When the positioning device is released, the counter plate can be pivoted relative to the base. Accordingly, the user can put on or take off the shoe with the pivotal counter assembly.

However, at least one hand of a user is needed for releasing the positioning device of the conventional counter assembly, so the use of the conventional pivotal counter assembly is inconvenient.

1 To overcome the shortcomings, the present invention tends to provide a  
2 pivotal counter assembly to mitigate or obviate the aforementioned problems.

### 3 SUMMARY OF THE INVENTION

4 The main objective of the invention is to provide a pivotal counter  
5 assembly for a shoe and one that is convenient in use. The pivotal counter  
6 assembly has a base, a pivot, a counter plate, a torsion spring, a push button, an  
7 engaging device and a biasing member. The base has a top, a bottom, a rear, a  
8 cavity defined in the rear and multiple threaded holes defined in the bottom. The  
9 pivot is pivotally mounted in the cavity in the base with a pivot pin and has a top,  
10 an outer surface and a pivotal hole with an inner surface axially defined in the  
11 pivot. The counter plate has a curved cross section and extends upward from the  
12 top of the pivot. The torsion spring is mounted around the pivot pin and is  
13 received in the pivotal hole in the pivot. The torsion spring has two ends  
14 connected respectively to the base and the pivot to provide a recoil force to the  
15 pivot. The push button is slidably mounted in the cavity in the base. The push  
16 button has a proximal end extending into the cavity and corresponding to the  
17 pivot and a distal end extending out from the cavity. The engaging device is  
18 mounted between the proximal end of the push button and the outer surface of  
19 the pivot to keep the pivot from rotating relative to the base and to hold the  
20 counter plate at a desired position. The biasing member is mounted between the  
21 push button and the base to provide a restitution force to the push button. When  
22 the push button is pushed, the engaging device will be disengaged and the pivot  
23 with the counter plate can be pivoted relative to the base so as to open the counter  
24 assembly. Accordingly, it is not necessary for a user to manually push the push

1 button, and the use of the counter assembly is easy and convenient.

2 Other objects, advantages and novel features of the invention will  
3 become more apparent from the following detailed description when taken in  
4 conjunction with the accompanying drawings.

#### 5 BRIEF DESCRIPTION OF THE DRAWINGS

6 Fig. 1 is an exploded perspective view of a pivotal counter assembly in  
7 accordance with the present invention;

8 Fig. 2 is a side plan view in partial section of a shoe with the pivotal  
9 counter assembly in Fig. 1;

10 Fig. 3 is a side plan view in partial section of the pivotal counter  
11 assembly in Fig. 1 showing the counter plate in a vertical condition; and

12 Fig. 4 is an operational side plan view in partial section of the pivotal  
13 counter assembly in Fig. 1 showing the counter plate in an open condition.

#### 14 DETAILED DESCRIPTION OF PREFERRED EMBODIMENT

15 With reference to Figs. 1 and 2, a pivotal counter assembly for a shoe in  
16 accordance with the present invention comprises a base (10), a pivot (20), a  
17 counter plate (26), a torsion spring (32), a push button (40), an engaging device  
18 (not numbered) and a biasing member (48). The base (10) is securely mounted  
19 on the sole of the shoe (60). The sole has a top and a recess (not numbered)  
20 defined in the top for receiving the base (10). The base (10) has a top, a bottom, a  
21 rear, a cavity (14), multiple threaded holes (12) and optionally a flange (16). The  
22 cavity (14) is defined in the rear. The threaded holes (12) are defined in the  
23 bottom. The sole has multiple through holes (62) respectively corresponding to  
24 the threaded holes (12) in the base (10). Multiple bolts (50) extend respectively

1 through the through holes (62) in the sole and screw into the threaded holes (12)  
2 in the base (10) so as to securely mount the base (10) on the sole with the bolts  
3 (50). The optional flange (16) laterally extends along the top and the rear and  
4 abuts against the top of the sole along the periphery of the recess in the sole when  
5 the base (10) is received in the recess. With the arrangement of the flange (16),  
6 the gap between the base (10) and the recess is closed, and this can keep water  
7 from entering the recess and makes the appearance of the shoe with the pivotal  
8 counter assembly attractive.

9         The pivot (20) is pivotally mounted in the cavity (14) in the base (10)  
10 with a pivot pin (30). The pivot (20) has a top, an outer surface and a pivotal hole  
11 (22) with an inner surface axially defined in the pivot (20). In a specific  
12 embodiment, the pivot pin (30) is a screw extending into one side of the base (10)  
13 and through the pivot hole (22) in the pivot (20) and screwing into the other side  
14 of the base (10). In an alternative embodiment, the pivot pin is a rivet extending  
15 through the base (10) and the pivot hole (22) in the pivot (20) to pivotally mount  
16 the pivot (20) in the cavity (14) in the base (10).

17         The counter plate (26) has a curved cross section and extends upward  
18 from the top of the pivot (20) to serve as a counter portion on the shoe. In a  
19 specific embodiment, an outer layer (not shown) made of resilient material is  
20 coated on the counter plate (26) to improve the comfort of wearing the shoe.

21         The torsion spring (32) is mounted around the pivot pin (30) and is  
22 received in the pivotal hole (22) in the pivot (20). The torsion spring (32) has two  
23 ends connected respectively to the base (10) and the pivot (20) to provide a recoil  
24 force to the pivot (20). In a specific embodiment, the torsion spring (32) has two

1 legs (322,324) extending respectively from the two ends. The pivot (20) has a  
2 groove (23) longitudinally defined in the inner surface defining the pivotal hole  
3 (22), and the base (10) has two tabs (17) separate to each other to define a gap  
4 (18) between the tabs (17). The legs (322,324) on the torsion spring (32) are  
5 received respectively in the groove (23) in the pivot (20) and the gap (18) in the  
6 base (10). Accordingly, when then counter plate (26) is rotated relative to the  
7 base (10), the torsion spring (32) will be twisted to store a recoil force.

8         With further reference to Fig. 3, the push button (40) is slidably mounted  
9 in the cavity (14) in the base (10) and has a proximal end, a distal end and  
10 optionally a pushed plate (44). The proximal end extends into the cavity (14) and  
11 corresponds to the pivot (20). The distal end extends out from the cavity (14).  
12 The optional pushed plate (44) is vertically formed on and extends from the  
13 distal end.

14         The engaging device is mounted between the proximal end of the push  
15 button (40) and the outer surface of the pivot (20) to keep the pivot (20) from  
16 rotation relative to the base (10) and to hold the counter plate (26) at a desired  
17 position. In a specific embodiment, the engaging device comprises two engaging  
18 recesses (24) and an engaging tooth (42). The engaging recesses (24) are  
19 longitudinally defined in the outer surface of the pivot (20). The engaging tooth  
20 (42) is formed on the proximal end of the push button (40) and selectively  
21 engages with the one of the engaging recesses (24) in the pivot (20). With the  
22 engagement between the engaging tooth (42) and the corresponding engaging  
23 recess (24) in the pivot (20), the pivot (20) will be kept from rotation and held in  
24 place relative to the base (10). In an alternative embodiment, the engaging

1 device comprises two engaging teeth formed on the outer periphery of the pivot  
2 (20) and an engaging recess defined in the proximal end of the push button (40)  
3 to selectively engage with one of the engaging teeth on the pivot.

4 The biasing member (48) is mounted between the push button (40) and  
5 the base (10) to provide a restitution force to the push button (40). In a specific  
6 embodiment, the push button (40) has a hole (46) defined in the proximal end for  
7 receiving one end of the biasing member (48).

8 With reference to Figs. 1 and 4, when the pushed plate (44) is pressed,  
9 the push button (40) will move relative to the base (10) and the engaging tooth  
10 (42) and the corresponding engaging recess (24) in the pivot (20) will be  
11 disengaged. Consequently, the counter plate (26) can be rotated relative to the  
12 base (10) to move the counter assembly to an open condition. When the pushed  
13 plate (44) is released, the biasing member (48) will push the push button (40)  
14 move backward and makes the engaging tooth (42) engage with the other  
15 engaging recess (24) in the pivot (20) to keep the counter plate (26) at the open  
16 condition.

17 When the pushed plate (44) is pressed and the engaging device is  
18 released again, the counter plate (26) will automatically rotate back to a vertical  
19 condition as shown in Fig. 3 with the recoil force provided by the torsion spring  
20 (32). Accordingly, to put on or to take off the shoe with the pivotal counter  
21 assembly is easy and convenient. To press the pushed plate (44), the pushed plate  
22 (44) can be pressed against a wall, the other foot of the user and so on. Therefore,  
23 it is not necessary for a user to manually operate the pivotal counter assembly. To  
24 use and to operate the pivotal counter assembly in accordance with the present

1 invention is convenient.

2           Even though numerous characteristics and advantages of the present  
3 invention have been set forth in the foregoing description, together with details  
4 of the structure and function of the invention, the disclosure is illustrative only,  
5 and changes may be made in detail, especially in matters of shape, size, and  
6 arrangement of parts within the principles of the invention to the full extent  
7 indicated by the broad general meaning of the terms in which the appended  
8 claims are expressed.